

Book reviews

The Pasture Lands of Northern Australia — Their Condition, Productivity and Sustainability

By JOHN TOTHILL and COL GILLIES. Published by the Tropical Grassland Society of Australia Inc. as Occasional Publication No 5, on behalf of the Meat Research Corporation, 1992. 106 pp.

The native pasture communities of northern Australia have been utilised for livestock production since their settlement — mostly in the period, 1840–1870 — resulting in continuing changes in their botanical compositions. Reduction in vegetative ground cover has led to accelerated soil erosion and invasions by exotic weeds are expanding in many native pasture communities.

There is an extensive knowledge of these matters, and of the reciprocal impacts of commercial livestock husbandries on the natural resources and of the changed resources on livestock production. Some of this knowledge is published, with a proportion expressed in quantitative terms, but differences in derivation and incompleteness in areal coverage have precluded many summations of quantitative information for communities or statistical regions. Much of the knowledge remains unpublished, and resides in the minds and records of those directly involved, including pastoralists, resource scientists and land administrators.

The piecemeal nature and inaccessibility of the knowledge has been an impediment to strategic considerations, where the scale and significance of issues need to be quantified, or where coordinated treatments require clear perceptions of commonalities and differences. This has long been an unresolved problem for those with obligations to devise efficient R & D strategies — particularly at the national level.

Significantly, this fragmentation of knowledge has precluded balanced public comprehension of issues relating to pasture degradation and the ecological sustainability of the pastoral industries. The consequences of this in the wider community include: unjustified assumptions that there is a general ignorance of the issues; unallayed public concern about soils, biota and the wider environment; and ill-informed public interventions into land administration and management.

The Meat Research Corporation deserves credit for commissioning and leveraging the integration of this knowledge involving three States and its capture between two covers, with a supporting database and 1:4 000 000 map. It will unquestionably facilitate the development of broad strategic directions for research and extension effort.

The report will, like earlier reports — *A Basis for Soil Conservation Policy in Australia* (1978), and *Land Degradation in Australia* (1983) — become an important source of information for the public to use or abuse. It is therefore worthwhile to contemplate its susceptibilities in this regard.

The authors selected the only unifying base possible without a total resurvey — the *Atlas of Australian Soils*. They surmounted difficulties in matching soil association or land system boundaries with those of plant communities, and achieved interpretations that required relatively minor amendments to Atlas boundaries. They used a concept of Local Pasture Units (LPU) — “locally known or published pasture types or communities” — as their base. This enabled access to contemporary knowledge as well as ensuring subsequent ownership, yet it permitted meaningful aggregation into standard savannah categories. With this base established, a rapid appraisal technique utilised the existing knowledge of expert resource persons to fractionate each LPU into three condition levels, allegedly from a matrix of three levels of independent soil, vegetation and management factor assessments. Factually, this matrix was constrained, so that each of the three condition levels is associated with specific levels of the three factors. For example, condition level C ties together severe soil deterioration, predominance of undesirable pasture species or woody weeds and management requiring major works or land use changes. Carrying capacity ranges were estimated for LPUs in good condition and mean carrying capacity multiplied by area yielded “beef equivalents” — a quasi-economic scalar for each LPU which did not reflect influences of poorer pasture condition classes. Previous resource

assessments (incomplete and with different derivations) were compared cautiously for evidence of trends in recent decades.

The result is a legitimate and strategically valuable compilation of knowledge, which nevertheless requires disciplined interpretation with a full awareness of the limitations inherent in its derivation. The authors display such discipline throughout as one who knows them would expect, but there must be some apprehensions that the data permit statistical sensationalism and improper interpretation by other less rigorous persons.

An outstanding feature is the section on "Strategies for Sustainability" which should be compulsory reading and rereading for any person engaging pasture management issues. This is not a set of management recipes for pastoralists or land administrators. It is a succinct but comprehensive treatment of the issues that need to be addressed and the type of knowledge required to permit practical pasture husbandries. It exposes the discontinuity between principles of sound management and the translation of those

principles into decisions at property or paddock levels. It is outstanding because it stimulates productive thought about how to bridge the discontinuities. It invites the serious reader to test many assertions for their validity and utility. Above all, it issues challenges to scientists and pastoralists to develop truly useful technology to resolve the very real problems which the report quantifies.

It should be a base reference for many years — one that provokes the search for sustainable solutions and provides a framework for testing the direction and completeness of the continuing effort. It is unlikely to stand as a benchmark of pasture condition for evaluating future conditions — if only because it is unlikely that any future national stocktake will use an identical methodology with similar quantifications to those of today's experts' value judgements.

MRC and the authors are to be congratulated for its creation, and the publishers for the quality of its presentation.

J.K. Leslie